

**UNIT SEQUENCE OF OPERATION**

**RUN CONDITIONS - SCHEDULED:**

THE UNIT SHALL HAVE A MASTER THERMOSTAT. THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:

**OCCUPIED MODE:** THE UNIT SHALL MAINTAIN

- A 74F (ADJ.) COOLING SETPOINT
- A 70F (ADJ.) HEATING SETPOINT

**UNOCCUPIED MODE (NIGHT SETBACK):** THE UNIT SHALL MAINTAIN

- A 85F (ADJ.) COOLING SETPOINT
- A 55F (ADJ.) HEATING SETPOINT

**ALARMS SHALL BE PROVIDED AS FOLLOWS:**

- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

**ZONE SETPOINT ADJUST:**

THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINT AT THE ZONE SENSOR.

**ZONE UNOCCUPIED OVERRIDE:**

A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE

**EMERGENCY SHUTDOWN:**

THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING AN EMERGENCY SHUTDOWN SIGNAL.

**FREEZE PROTECTION:**

THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZESTAT STATUS.

**SUPPLY AIR SMOKE DETECTION:**

THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.

**SUPPLY FAN:**

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. THE FAN SHALL RUN CONTINUOUSLY IN OCCUPIED MODE AND SHALL CYCLE TO MEET ZONE TEMPERATURE REQUIREMENTS IN UNOCCUPIED MODE.

**ALARMS SHALL BE PROVIDED AS FOLLOWS:**

- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

**COOLING WITH DEHUMIDIFICATION**

ON A CALL FOR COOLING BY THE SPACE THERMOSTAT (BUILDING CONTROL SYSTEM), THE UNITS COOLING CIRCUITS SHALL BE ENERGIZED AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SET POINT. THE HUMIDITY IS LOCATED IN THE RETURN DUCT (OR AS OUTLINED BY THE CONTROLS CONTRACTOR) SHALL MONITOR RETURN AIR RH. IF THE RH EXCEEDS 55%, THE UNITS SUBCOOLING CIRCUITS SHALL BE ENERGIZED. THE HOT GAS REHEAT VALVE SHALL MODULATE TO ALLOW HOT GAS FROM THE COMPRESSOR TO FLOW TO THE REHEAT COIL. THIS WILL ALLOW ADDITIONAL DEHUMIDIFICATION WITHOUT OVERCOOLING THE SPACE.

THE COOLING CIRCUIT SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS GREATER THAN 55°F (ADJ.).
- AND THE ECONOMIZER IS DISABLED.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING IS NOT ACTIVE.

**ECONOMIZER MODE**

WHEN OUTDOOR TEMPERATURE AND ENTHALPY ALLOW, THE UNIT SHALL MODULATE TO FULL OUTSIDE AIR INTAKE AND THE MECHANICAL COOLING SHALL BE DE-ENERGIZED. DURING THE ECONOMIZER CYCLE THE SPACE HUMIDITY LEVELS EXCEED 55%, THEN THE ECONOMIZER SHALL MODULATE TO THE MINIMUM POSITION AND THE MECHANICAL COOLING SHALL BE ENERGIZED AS OUTLINE IN THE "COOLING WITH HUMIDIFICATION" SECTION. THE MINIMUM ECONOMIZER POSITION SHALL CORRESPOND WITH THE MINIMUM OA CFM (AS DETERMINED DURING TEST AND TUNING) TO MAINTAIN INDOOR AIR QUALITY AS DEFINED ON THE UNIT SCHEDULE WHENEVER OCCUPIED

THE ECONOMIZER SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 55°F (ADJ.).
- AND THE OUTSIDE AIR ENTHALPY IS LESS THAN 22BTU/LB (ADJ.).
- AND THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
- AND THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY.
- AND THE SUPPLY FAN STATUS IS ON.

THE ECONOMIZER SHALL CLOSE WHENEVER:

- MIXED AIR TEMPERATURE DROPS FROM 40°F TO 35°F (ADJ.).
- OR THE FREEZESTAT (IF PRESENT) IS ON.
- OR ON LOSS OF SUPPLY FAN STATUS.

**MINIMUM OUTSIDE AIR VENTILATION - FLOW PERCENTAGE:**

THE OUTSIDE AIR DAMPERS SHALL MAINTAIN MINIMUM POSITION (ADJ.) DURING BUILDING OCCUPIED HOURS AND BE CLOSED DURING UNOCCUPIED HOURS.

**HEATING**

ON A CALL FOR HEATING BY THE SPACE THERMOSTAT (BUILDING CONTROL SYSTEM), THE UNIT MOUNTED GAS TRAIN SHALL MODULATE TO MEET HEATING SET POINT. THE OUTSIDE AIR (ECONOMIZER) SHALL BE IN THE MINIMUM POSITION.

THE HEATING CIRCUIT SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE ECONOMIZER IS DISABLED.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE COOLING CIRCUIT IS NOT ACTIVE.

**OCCUPIED/UNOCCUPIED MODES**

THE SUPPLY FANS SHALL RUN CONTINUOUSLY DURING OCCUPIED MODE AS SCHEDULED IN THE BAS. DURING THE UNOCCUPIED MODE THE FANS SHALL MODULATE AS REQUIRED TO MEETING THE COOLING/HEATING LOADS.

**SMOKE DETECTION:**

THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING AN AIR SMOKE DETECTOR STATUS.


**CONTROLS AND SEQUENCE OF OPERATION - SINGLE ZONE CONSTANT VOLUME PACKAGED UNIT**

SCALE: NONE

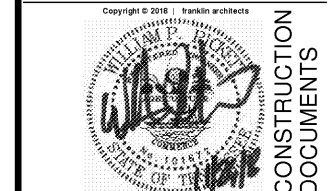
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CONTROLS

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 ORIENTATION

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